may be held in place in the grooves by cementing or by other means.

As previously discussed, the length to diameter aspect ratio of the waveguide is such that it operates as a waveguide above cutoff for the frequency of the light beams. Also, the cross-section of the waveguides should be of a size large enough so that they do not alter the illumination of the associated light beam source **34**. However, too large a cross-sectional size of the waveguide will cause an increase in the spacing of light beams from one another which will cause a decrease in resolution of the touch panel by limiting the number of beams. Also, increasing the cross-sectional size of the waveguide will cause a corresponding increase in the length of the waveguide to maintain the length to diameter aspect ratio required, and this will result in a larger electromagnetic energy interference seal **30** size and a larger display unit **10**.

It has been found that spacing the centerlines of waveguides which are 3.1 mm in circular cross-section by 12.7 mm in length apart by approximately 3.3 mm will permit an interruption of at least three beams by the average size finger. A light beam matrix of 128 beams horizontally and 96 beams vertically will cover an interactive area of approximately 430 mm by 322 mm.

As shown in FIG. **4**, the faceplate **26** and electromagnetic energy interference seal **30** have stepped edges to interlock with each other. The wire mesh **38** embedded in the faceplate **26** extends through the stepped edge area and is exposed. Thus, by assembling the two stepped edges together, the wire mesh, which provides an electrical path across the faceplate, is in contact with the electrically conductive electromagnetic energy interference seal **30** which is in electrical contact with the electrically conductive front bezel **14**. By contacting the bezel **14** with the outer enclosure **12**, the display apparatus is surrounded by electrically conductive material which may be connected to ground potential to provide a path for electromagnetic energy interference thereby shielding the display apparatus.

In order to facilitate maintainability and to establish an electrically conductive path for an electromagnetic energy interference sealing, a type of electrically conductive adhesive compound may be used in accordance with the invention at the interlocking stepped surfaces. By using a compound which provides adhesion but which permits nondestructive disassembly of the touch, panel, maintenance is facilitated while an electromagnetic energy interference seal can still be formed. When the compound is placed between the electromagnetic energy interference seal **30** and the faceplate **26** and wire mesh **38**, the compound provides adhesion as well as a low electrical resistance across the joined parts to assure a continuous electrical contact all around the faceplate perimeter to preserve the electromagnetic energy interference seal. It has been found that a silver epoxy is usable for this purpose when not mixed with a catalyst. The silver epoxy is electrically conductive and preserves an electromagnetic energy interference seal since it has a putty-like viscosity which fills any surface irregularities. A supplier of such adhesive is Ablestick Corp. of Gardena, Calif.

Where the touch panel components are assembled as shown in FIG. **3**, maintenance may be performed without requiring realignment each time the front bezel **14** is disassembled. Circuit cards **18** and **22** are shown mounted in place by standoffs **48** and **50** which are rigidly mounted to the front bezel **14**. By also rigidly mounting the electromagnetic energy interference seal **30** to the front bezel **14** and using the mounting compound described above between the seal **30** and faceplate **26**, disassembly can be effected for repair, such as to replace a broken faceplate **26**, without loss of alignment of the light beam sources, detectors and the waveguides **40**.

The foregoing detailed description and the accompanying drawings have presented certain embodiments of the invention. Variations and modifications of the specific constructions shown may be employed without departing from the scope of the invention. For example, circular waveguides have been discussed but waveguides of other cross-section shapes are usable. The display device has been referred to as a video display tube and a CRT, however, other display devices including flat panel displays such as a plasma display are usable. Also, light emitting diodes of infrared light have been described as the optical sources, however, other types of light sources are also usable. In addition, instead of using a separate sealing arrangement between the faceplate and the outer bezel, the faceplate could be formed of a single sheet of conductive material or coated plastic, bent or dished at the edges to directly engage the outer bezel. Waveguides would be formed in the outer stepped or beveled edge of the conductive material or coated plastic sheet. Alternatively, a single bezel member may extend all the way from the faceplate to engage the outer enclosure **10**. Accordingly, it is intended that the scope of the invention include such variations and modifications as well as others unless limited by the claims.

What is claimed is:

1. An electromagnetic energy interference seal for light beam touch panel systems having a matrix of crossed light beams formed by pairs of opposing light beam sources and light beam detectors used to establish the position of an object inserted into said matrix, said matrix having a periphery comprising:

an electrically conductive member disposed at the periphery of the matrix of crossed light beams and having a plurality of spaced apart apertures formed therethrough which are disposed in optical alignment with the light beams for passing the light beams therethrough;

the apertures having a cross-section size to length ratio selected so that said apertures act as waveguides having a cutoff frequency which is lower than the frequency of the passing light beams and is higher than the frequency of electromagnetic energy interference; and

environmental sealing means disposed across the apertures for sealing said apertures from environmental contaminants.

2. The electromagnetic energy interference seal of claim **1** wherein the plurality of apertures are disposed in the member such that there are two apertures in optical alignment with each light beam, one aperture being disposed adjacent a light beam source and the second aperture being disposed adjacent the paired light beam detector.

3. The electromagnetic energy interference seal of claim **1** wherein the length of the apertures is at least four times the cross-sectional size.

4. The electromagnetic energy interference seal of claim **1** wherein the length of the apertures is approximately four times the cross-sectional size.